

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 January 2001 (11.01.2001)

PCT

(10) International Publication Number
WO 01/02838 A1

(51) International Patent Classification⁷: G01N 21/49, 21/61, G08B 17/107

(21) International Application Number: PCT/NZ00/00118

(22) International Filing Date: 3 July 2000 (03.07.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
336552 2 July 1999 (02.07.1999) NZ

(71) Applicant (for all designated States except US): UNIVERSITY OF OTAGO [NZ/NZ]; Leith Street, Dunedin (NZ).

(72) Inventor; and

(75) Inventor/Applicant (for US only): WILSON, Andrew [NZ/NZ]; Leith Street, Dunedin (NZ).

(74) Agents: WEST-WALKER, Gregory, James et al.; West-Walker Bennett, Mobil on the Park, 157 Lambton Quay, Wellington (NZ).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

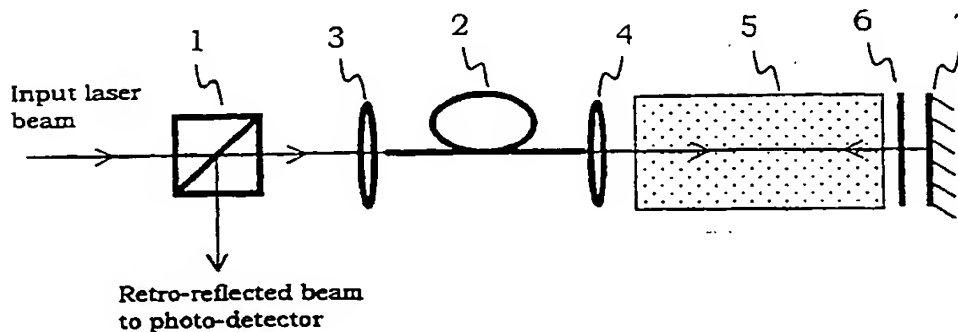
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

- With international search report.
- Before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: APPARATUS AND METHOD FOR GAS SENSING



(57) Abstract: An apparatus for remote gas sensing comprises a light source, a polarising beam splitter (1), a photodetector, a single polarisation preserving optical fibre (2), a gas cell (5) or a zone through which the gas passes, a quarter-wave plate (6) and a mirror (7). A light beam from the light source passes through the beam splitter (1) and is focused by a lens (3) into the fibre (2) where it travels maintaining its polarisation state. Upon exiting the fibre (2), the light is collimated by a second lens (4) and propagates through the gas cell (5) and the quarter-wave plate (6) in a double pass configuration being retro-reflected by the mirror (7). The light beams is then focused back into the fibre (2) where it propagates with a polarisation state which is perpendicular to that of the forward propagating light. When light emerges from the fibre (2), it is reflected by the beam splitter (1) onto the photodetector.